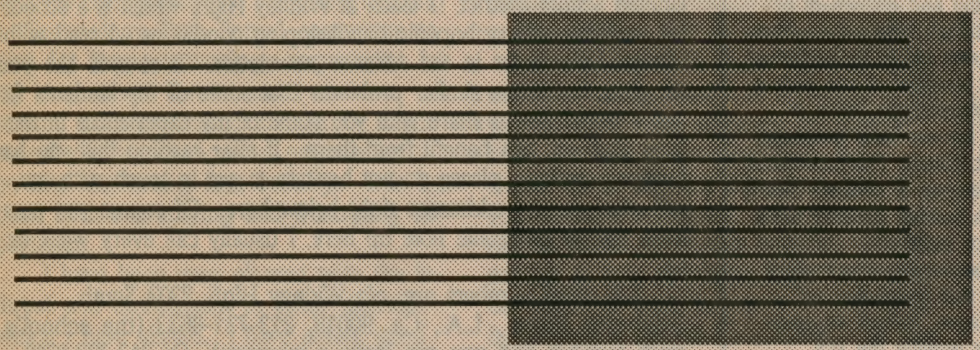
The Co-op Spirit

PEOPLE HELPING PEOPLE WITH PERSONAL TECHNOLOGY *July 1991*



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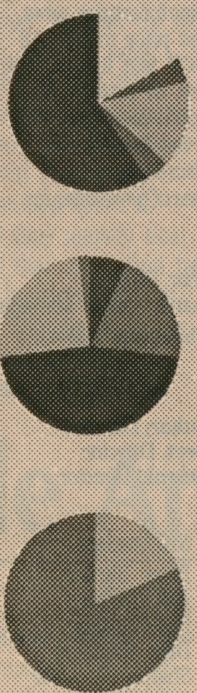

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...a computer cooperative

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THE CO-OP SPIRIT is the monthly newsletter of TechAlliance, a non-profit computer cooperative committed to providing members with resources that increase the understanding and enjoyment of personal computers. The co-op provides members with user groups for the Amiga, Apple // Family, Macintosh, and MS-DOS machines. Both beginning and advanced assistance are provided at our various Special Interest Group Meetings. The Kent, Washington office is presently being set up as a resource center for our local members. Members can peruse the software and book library. This newsletter is our official organ and is sent to every member. It consists mostly of contributions from the membership which include industry news, machine-specific articles, and other items of interest.

MEMBERSHIPS: TechAlliance Memberships may be obtained by filling out the form on the back cover of this newsletter and mailing it, along with your dues, to TechAlliance. Annual Membership dues are $25.00 per year; $35 per year outside the U.S.

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SUBMISSION DEADLINES: The deadline for articles, news, and meeting announcements will be the 1st of the prior month. All articles must be submitted on a 3½"disk in ASCII text format with hardcopy included *(this is the preferred method)*, or articles may also be uploaded in ASCII text format to the TechAlliance BBS with hardcopy submitted by mail. TechAlliance reserves the right to review, edit, delete or accept articles at its discretion.

MEETING SCHEDULE: Please see last pages of newsletter for meeting schedules and times.

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TechAlliance BBS System Operator – Paul Stout

Member Needs Help

In the June 1991 issue of our newsletter, we published a request for information regarding PC connectivity possibilities for a Penske Romich Express III # 6. The following response was received on the TechAlliance BBS to that request:

Msg #:21870, *Newsletter*, 06/06/91 21:33:52
From: JOE STONE, To: MATHEW WOOD, Subj: DAUGHTER

Dear Mr. Wood,

My name is Joe Stone and I am a teacher with the Los Angeles Unified School District. I teach at Widney High, which is a school for students with orthopedic handicapping conditions. I read with interest your letter in the Alliance newsletter. It sounds like your daughter has some similar problems that some of my students face and I would like to share with you some of my experiences in the hope that you can benefit from them. If after reading this you have further questions, please do not hesitate to get in touch with me. I will give you my addresses right below here. Of course you may leave me an electronic note up here. I usually call every week or so.

My other numbers are: c/o Widney High, 2302 South Gramercy Place , L.A., Ca. 90018, 213-731-8633 (the school's main number and you can leave a message) Or 213-732-8719, which is a line direct to my classroom.

My first suggestion is that you write to Words Plus. They make some great adaptive systems for IBM machines. Call them on their 800 number and they will send you a catalog (800-869-8521). I have trained two students on a program called Scanning WSKE. It is a memory resident program that puts up an alphabet square, usually in the upper right hand corner, and the student scans the square and picks out the letter that they need. The unique feature of this system is that it has a word prediction program built-in, where it will give you six choices of words that might be used in this situation. As you use it, it configures itself to your vocabulary and is a great way to build speed up. A system like this is used by the English physicist Hawkings, who suffers from ALS. Your daughter will have to use a switch or two to operate it, which can be mounted on her chair as a head switch or as a foot switch. Scanning WSKE can be set to scan automatically, or you can make it scan by operating the switch(s). Be advised that this system is expensive. You can get scanning WSKE, the software, and the adapter for the printer port which acts like a copyright protector, for around $800. They also sell it put into a Toshiba laptop that is adapted for speech (a really good system), which sells for around $5,000 (computer, software, adapter, and speech output). There is also some stuff for Apples made by Don Johnson. I use this stuff too and it is very good for what it is intended to do. The disadvantage is that Apples are not portable like IBMs. The Scanning WSKE is a total communication package, not just a computer and that is why it is so expensive. I will be happy to provide you with more info about any of this stuff. I will give you Don Johnson's number next time I call. His major device is called the Adaptive Firmware Card. Call your local school district and ask to speak to someone in special ed/computers and perhaps they can give you his number sooner. Hope this has been helpful and please feel free to get in touch with me again with any questions. I do not presume to know all the answers, but I know a lot of people who have supplied me with answers when I needed them and will be happy to share with you too.

Good luck. Joe.

Editor's Note: Thank you for your response to Mr. Woods request for help. If any other member has information that may be of assistance to Mr. Woods, please send it to Editor, The Co-Op Spirit, c/o TechAlliance. ▲

An Educational Advantage

by Bob Huelsdonk

I wrote in a previous issue about the need for computer users to get involved with helping their school districts. Well, I took my own advice and I am now chairing a "Technology Task Force" committee to plan for future technology acquisitions for my local school district and I am also serving on a committee to plan for major overall district changes in preparation to go into the twenty-first century. This has been both a gratifying and frustrating experience.

I have been very pleased with the interest and enthusiasm in other districts which I have visited. I have gotten good advice and have been able to view how others have succeeded (or sometimes failed) in implementing technology. I also have a much greater empathy with the problems which teachers face in using and accessing technology.

As good computers have dropped in cost, the schools can better afford them, though in general, at least in smaller districts, there is a long way to go. Probably the greatest gap, however, is the lack of knowledge on the part of teachers and administrators of what is possible. I have given and participated in teacher and staff demonstrations of video disk control from HyperCard stacks, video image transfer and then image editing, CD ROM books with stories, pictures, and sound, simulations of physics experiments, music synthesis and analysis, and many others. The viewers were amazed and enthused with anticipation and for the most part did not know what was easily possible at this time and with relatively inexpensive hardware and software.

The frustration comes from wanting to implement as much as possible within budget and time constraints and making precious dollars buy as much as possible.

I will be glad to share with you readers what we have found to be useful in the way of hardware, software, configurations, and teaching methodology but I would like to strongly encourage any of you who are educators, school staff, concerned public, or anyone working with the schools to help by participating. You can do this in at least two ways. The first is by helping to get others involved. Get any of your friends in education who are not members to join TechAlliance. If each interested member would bring in two new members we would quickly grow an education Special Interest Group (SIG) to really meaningful proportions. Then the next, and the most important point; if you are aware of good applications of hardware, software, or techniques, let others know by writing a review for this newsletter. Don't worry about writing style or how thorough or polished it may be; just try to be objective and accurate and tell what you know. I was surprised to find that there is very little objectively written by users about the educational use of technology. There are educational technology magazines but they sometimes seem to have an axe to grind and they usually deal with high level programs that may often be unaffordable. There are hundreds of programs available in public domain or at low cost but one teacher cannot review hundreds or tens of programs. But if each teacher reviewed one or two programs and could say "super" or "garbage", we would soon build up a data base of information on available educational programs. This has been one of the most valuable services of users groups because they have no axe to grind. Having a data base of information on what's good and what's not, we could also start to influence programmers and suppliers of educational software to produce what is needed.

Some Real Time information

After considerable discussion, several school visits, and researching of the literature, a committee made up of teacher, administration, and community representatives chose to implement a new computer business lab with Macintosh LC computers with a SE/30 network server, one dot matrix printer, one Laser printer, and a CD ROM player. The software will be Microsoft Works for most business use and HyperCard for compilation of student research projects. Since this is just being installed, I cannot report on results as yet, but we believe they will be good.

There is a recurring theme that everyone seems to agree with. Inservice training of the teachers in sufficient quantity and technical support for the hardware and software is essential or the school will not get the effectiveness from the system.

Till next time, happy computing, happy teaching, and get busy on writing and submitting review articles. ▲

System 7 Upgrade Answerline

If you have questions regarding upgrading your Macintosh to System 7.0, Apple Computer has set up a telephone number just for you. The System 7.0 Upgrade Answerline will assist customers with upgrading and installation. The Answerline operates from 6:00 a.m. - to 5:00 p.m., Pacific Time, Monday - Friday. Customers who have not yet purchased their upgrade kit can call the Answerline at (900) 535-APPL. Please take note the number is a 1-900 number and calls are charged at the rate of $2.00 per minute. There is also a 24 hour line that provides recorded answers to the most commonly asked questions regarding System 7.0 installation. That number is (408) 247-7700. ▲

BBS News

TechAlliance has a New Special Interest Group

by John Keithly

The K-12 Educators SIG was established on the TechAlliance Bulletin Board in May. In addition to reading & posting messages of interest to others in the field of education, TechAlliance members can now also read selected KidsNet postings in the TechAlliance Educators Section (Main Menu Selection Item #8).

What is KidsNet? It's a network first established about two years ago, which is now available to users of FidoNet and more recently—Internet. TechAlliance hopes to soon be connected to one of these "super networks" but for the time being we are simply sampling and reposting the best of approximately 500 daily public access postings of interest to Kindergarten through High School age students and their teachers. For those of you who haven't yet tried our BBS or haven't yet found our new SIG group, we are providing a small, edited sampling of what you can read more about by reading through the Education SIG message threads.

For further info on KidsNet and how to join it for users with access to Internet. See TechAlliance K-12 Educators Message # 21415

<127078@unix.cis.pitt.edu>
Date: 11 May 91 21:38:26 GMT
Organization: Univ. of Pittsburgh, Computing & Information Services
Lines:36

KIDSNET Mailing List

The KIDSNET list was established in May, 1989 to stimulate the development of an international computer network for the use of children and their teachers. The first pieces of this network have already begun to take shape, and the mailing list now helps to guide its continuing evolution. Subscribers to the list include teachers, administrators, scientists, developers of software and hardware and officials of relevant funding agencies. Topics of continuing interest include:

* networks at the local, regional and national level
* news and mail interfaces suitable for children's use
* network services for the K-12 audience
* development of new network services and projects
* collaborative projects at the national and international level
* network access for the handicapped

Subscription requests may be sent to one of the following addresses:

kidsnet-request@vms.cis.pitt.edu[Internet]
joinkids@vms.cis.pitt.edu[Internet]
joinkids@pittvms[BITNET]

A spin-off of the KIDSNET list is another list called KIDS, which exists for children to post messages to other children. This second list was established after some children's postings appeared on KIDSNET and readers requested that the children's traffic be kept separate. Subscription requests for KIDS can be sent to JOINKIDS at the address given above. Postings to the KIDSNET list are accomplished with mailings to the address

kidsnet@vms.cis.pitt.edu[Internet] or Similarly, children may post messages for the KIDS list by sending mail to kids@vms.cis.pitt.edu[Internet] orkids@pittvms[BITNET]

Bob Carlitz

The expected future of KidsNet & how to find out more about it. See TechAlliance K-12 Educators Message # 21604

Date: Thu, 23 May 91 14:00 EDT
From: "ROBERT D. CARLITZ" <RDC@vms.cis.pitt.edu>
Subject: America 2000 - page 28

In the sourcebook distributed by the U.S. Department of Education entitled "America 2000: An Education Strategy" one finds the following paragraph on page 28.

BRINGING AMERICA ON-LINE: The secretary, in consultation withthe president's science advisor and the director of the National Science Foundation will convene a group of experts to help determine how one or more electronic networks might be designedto provide the New American Schools with ready access to the best of information, research, instructional materials and educational expertise. The New American School R & D Teams will be asked for their recommendations on the same question. These networks may eventually serve all American schools as well as homes, libraries, colleges and other sites where learning occurs.

I believe that this statement represents the first steps by the Department of Education toward an endorsement of the sort of network that has been the goal of the KIDSNET mailing list since its inception. Given that the Department has had only a minimal involvement with the Internet to date, it's very unclear how their ambitious goal may eventually be achieved. I would hope that those with knowledge of the Internet and with the development of educational applications on the Internet would make a strong effort to inform people inside the Department of the rich possibilities that the Internet offers to the K-12 community. A few of these people are already subscribers to this list. Others are just a telephone call away.

The sourcebook quoted above is available from the U.S. Department of Education, Washington, D.C. 20202-0498. For further information phone 1-800-USA-LEARN (1-800-872-5327). I received my copy in a meeting at the Department, but I presume it is generally available.

Bob Carlitz ▲

Look Ma, No Modem!

by Noel Nyman

Many of us use several computers of different brands, with different operating systems or disk formats. Inevitably we need to transfer data, usually word processor text, between two such dissimilar machines.

An easy way to get any two computers to communicate is to use their "standard" RS-232 ports. Almost every personal computer made comes with a DB-9 or DB-25 connector designed for serial communications.

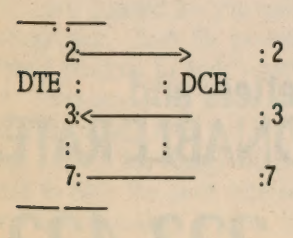
You won't need modems. But, you will need a "null modem" cable. (On some computers such as the Commodore C64 and C128, you may need an RS-232 interface as well.)

The RS-232 system was intended to allow "terminals" (keyboards with monitor screens and not much else) to talk with main frame computers using modems. We've replaced the old "dumb" terminals with incredibly smart computers. But, they're still called "Data Terminal Equipment" or "DTE" in RS-232 talk. The host main frame (or modem) is a "DCE" or "Data Communications Equipment" device. The distinction is important. It's the reason why a "normal", "straight through", NOT-null modem cable won't work between two computers.

On the telephone, both you and the other party can talk at the same time. This is "duplex" communications, and it's possible because humans are very good at telling who's talking based on voice frequency and inflexion. Modems connected to the phone line can do this, too. They use specific frequencies to keep the separate signals straight.

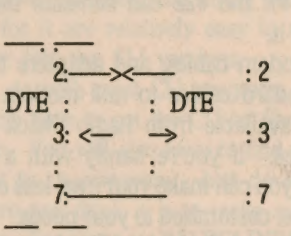
But, the RS-232 data are only pulses of voltage, which means that two devices can't talk at once on the same line. The RS-232 solution is to provide each device with its own data line for talking, and another line for receiving.

The DTE's transmission line is the DCE's receiving line, and vice versa.

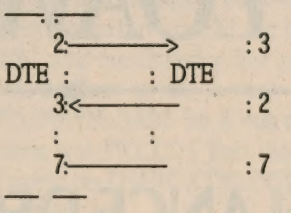


The diagram shows the pin numbers most often used for these lines on the DB-25 connector. A DTE sends data on pin #2, and a DCE receives data on the same pin. Pin #7 is a common line for both the transmit and receive circuits.

If we connect another computer in place of a main frame or modem, we've put a DTE device where the designers of RS-232 intended a DCE to be.



Both computers dutifully listen for transmissions from the other guy on pin #3 while madly talking to each other on pin #2. The result is no communication. We need a cable that makes each DTE device think it's connected to a modem. Even though there's no modem (a "null" modem) there.



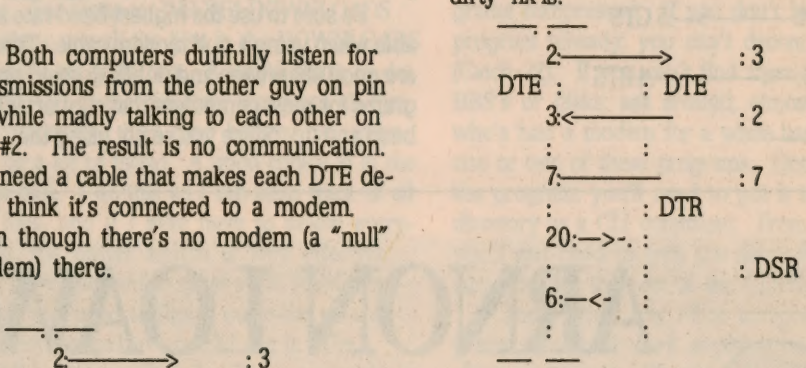
This cable connects pin #2 on the left to pin #3 on the right. It also connects pin #3 on the left to pin #2 on the right. Each DTE is now listening to the other's transmit line. In it's simplest form a null modem cable is just these three wires...pins #2 and #3 cross connected and pin #7 straight through. This may be all you need. Or, depending on the terminal programs you use, it may not work just yet.

The other pins in the connector are used for "handshaking", a quaint term that means the two devices agree to talk by signaling each other. Some programs use signals over the data lines for all handshaking. Other DTE's may send a signal on pin #20 when ready to start talking. This is called the DTR or "Data Terminal Ready" signal. If used, it's usually activated when the terminal program is first run and stays active for the entire data transfer session.

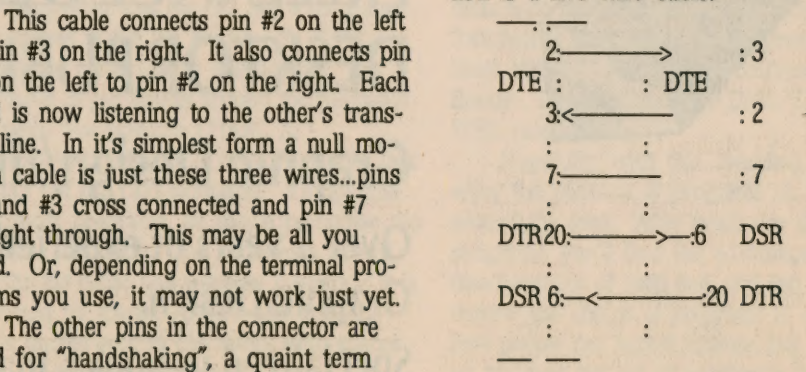
The DCE has a similar signal called DSR for "Data Set Ready", found on pin #6. The terminal program may look for this signal and refuse to chat unless the DSR pin is active.

If a three wire null modem cable doesn't work for you, one or both of the terminal programs in your computers may be expecting DTR/DSR signals. You can check that by monitoring pins #6 and #20 with a voltmeter or an RS-232 line analyzer. Radio-Shack sells one (#276-1401) with LED's that tell you the status of the lines.

If a computer is sending a DTR, it's probably expecting a DSR back. A "quick and dirty" fix is:



Just connect the DTR signal back to the DSR pin. The computer thinks it's getting the DSR from the other machine, and communications can begin. A better solution is a five wire cable:



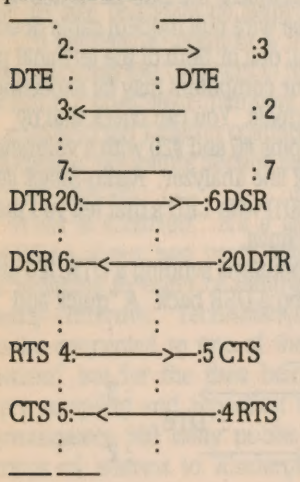
Be sure to "cross connect" pins #6 and #20 just as you did #2 and #3.

continued on page 6

Look Ma, No Modem...continued from Page 5...

Two other handshaking lines may change state more frequently. The receiving machine must tell the host to stop sending while it accesses the disk drive. It can do that using the RTS or "Request To Send" line on pin #4. The host, a DTE, thinks it's talking with a DCE, and will send data as long as it has a CTS, "Clear To Send", on pin #5.

This seven wire null modem cable will see you through just just about any computer-to-computer transfers.



There are two other signals sent by DCE's that some programs may want to use. When a modem hears another modem's carrier tone on a phone line, it sends a CD or "Carrier Detect" signal to the DTE on pin #8. You can simulate CD by installing a switch between pin #8 and pin #7. If you add a wire to your cable connecting pin #8 on both machines, they'll both get the CD signal.The other modem line is only useful for BBS programs or "Answer" mode. When the modem "hears" the phone ring, it sends RI or "Ring Indicator" signal on pin #22. A simple momentary push button switch between pins #7 and #22 can simulate the RI if you need it.

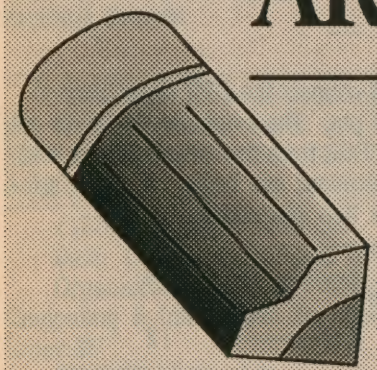
Null modem cables, and adapters that convert standard cables to null modem operation are available from Radio Shack and other sources. If you're handy with a soldering iron, you can make your own less expensive cable, customized to your needs.

Be sure to use the highest baud rate available when using a null modem cable. There are good shareware and public domain programs for most computers that support 9600 baud and up. Since you're not using the phone lines, noise will not be a problem. For text files,you can use ASCII transfer rather than Xmodem or other protocols that slow down the process with error checking.

Authors Note: I've never owned an Apple computer (although I do have CP/M, Commodore, and MS-DOS machines). But, I do read "The Co-OP Spirit". I saw your call for articles in the March issue. I reworked two articles I prepared for Commodore oriented publications. Perhaps they will be of some use to you.

Noel Nyman
PO Box 58587
Seattle WA 98138
244-6236 (home) ▲

ARNON LOAWHAKASETR



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File Compression, Part II

by Kelly Petlig

In my last article on file compression, I highlighted on PowerPacker and Imploder. PowerPacker Pro version 3 is now available through mail order (Safe Harbor) for around $20.00. It's updates include much faster compression with different decompression colors. Imploder has seemed to vanish, but I'm still looking for any new information on that product with no results so far.

This article will include different ways of getting more out of storage. If you've ever browsed through the file section of most BBS's (Bulletin Board Systems), you've most likely discovered the file extensions of ZOO, ARC, ZIP, LZH and others. These files are the result of compression schemes specially suited for file transfer. One advantage of these compression schemes isn't even the compression itself, but the way each one can join a group of files together into one file with the extension. For example, PICTURES.ZOO may have several picture files grouped together and compressed into one file. Almost every file compression method allows grouping together of a whole sub-directory or even entire disk. This is especially useful for the creator of such files. For our PICTURES.ZOO example, not only could the creator of the pictures group together all his related works of art, he could also add an explanation of how he made them, and where to send any comments. Some programs require many files in many different directories, and compressing all those files together will make sure that the program will still run. A game could be called CARD_GAME.ARC and everything needed, including the documentation, would all be in one file. This is much easier than finding the fifteen files you would need to play cards.

Now you're thinking, that all sounds great, but how do I get them all out of this one file? All good things have their costs, and to get these files out of their compressed form —you guessed it— you need a decompressor. Each file extension needs a different program to undo what's been done to it. Examples, .ARC needs Arc, .ZOO needs Zoo, .LZH needs LhArc (no not Lzh), .ZIP needs ZIPPY. The Amiga world of files seems to have the most different schemes of compression, making it seem to be the source of the most confusion among the different computer systems. IBM'ers stick pretty much to ZIP, Mac's mainly use SIT, and Amigans are going toward LZH.

Those mentioned compressor/un-compressor programs are CLI programs. For those of you unfamiliar with CLI, programs are available that will interface the Workbench to these programs. There are also two Workbench programs to un-compress and compress, PkAZip and LhArcA. Both are shareware and can be found on local BBS's. PkAZip was also found on the January 1990 JUMP disk. Since the Workbench is a very intuitive interface, and most programs written for it are relatively easy to use, I will cover just the CLI versions.

As with most CLI programs, you of course have to get the CLI or Shell window open. You will also have to find the file you want to un-compress. Just do a directory where you think it is to make sure that it's there. For instance, DIR DF1:DOWNLOADS will show you all the files in the DOWNLOADS directory on drive one. A useful thing to do now is CD to the directory you want all the un-compressed files (and believe me, there can be a lot of them). A good choice is in the RAM disk. I do this so I can keep track of all the files, and if I ever have to delete everything, the power switch is very effective.

Now that you've done a CD RAM: command, you need to figure out what un-compressing method to use and use it. The "which" was mentioned a few paragraphs earlier; the how is just as easy. If the file is in DF1:DOWNLOADS (as it was earlier) and it's name was FILE.LZH, then the command to type would be: LHARC X DF1:DOWNLOADS/FILE (that's all).

Remember that the CLI has a hard time with spaces in it's file names. So if you have a file name that is questionable, you may have to put quotes around the file name and path. For example: LHARC X "DF1:DOWNLOADS/FILE_NAME" Notice that I didn't put the LZH extension. It's optional with most programs, as they'll recognize the file name without it. The X between LHARC and the file name has a special meaning. It is separated by spaces. That's why the CLI needs quotes around file names with spaces —so it won't get confused.

In case you're wondering, the X means EXTRACT. It is a command to LHARC telling it what to do with the file. And in this case, LHARC allows you to modify that to X// which means EXTRACT into subdirectories. LHARC will make any subdirectories not already in existence to put the files in the correct places. Most of the other un-compressing programs also recognize the X command, so if in doubt, try it.

If you would like to see what's in the archive (compressed file) without decompressing it, you could put a V in place of the X, meaning VIEW. As in most CLI commands, typing just the name of the program with a space and a question mark will give clues on how to use it, and maybe some new commands to try. ARC and ZOO generally work in the same way as LHARC, and are just older methods of compression. LHARC is generally the most efficient, but ZIPPY still can beat it in special cases.

You may wondering, "Where are these programs?" Well, they are on the BBS's and a few public domain and commercial disks. Unfortunately, some BBS's have the programs compressed. If you don't have the program already, you can't decompress it (Catch 22). If you can't find them on the BBS's or disks, ask around, almost everyone who's had a modem for a while has at least one or two of these programs. Once you get the program, you'll need to put it in your C: directory as a CLI command. From then on, you'll just need to type the name for it to run, just like the rest of the CLI commands.

There are a few other compression programs that don't work anything at all like the above mentioned. Disk Masher, Zoom, and Warp are disk compressors. They bypass all normal file accesses and compress the entire disk structure, boot block and all. These are good for the demos and public domain games that require the custom bootblocks, or the disks with hidden information on them. Unfortunately, they also can compress any boot block viruses! And will uncompress only to a floppy. The extensions are DMS, ZOM, and WRP respectively.

Hopefully, with this overview, you can enjoy the plethora of programs on the BBS's around the area. After much use of all the programs, you'll find the advantages and disadvantages of each one, and can help us narrow the choice of programs to a few. Few people can accept change, but hopefully us Amigans can get an acceptable method and phase out the less attractive ones. I wish you all happy archiving!

Editor's Note: File Compression, the first part of this article appeared in the May 1991 issue of the Co-Op Spirit. ▲

Communications Basics - Part II

File Transfer Protocal

by Alan D. Applegate

In my [previous] column, I discussed file transfer protocols in general, then outlined the major features that you'll encounter in the protocols you use. In this final installment on protocols, I'll describe each protocol in more detail. I'll also provide my own recommendations on the best protocols to use in specific situations.

First, XMODEM. In its original implementation by Ward Christensen, XMODEM was an extremely simple protocol. Possessing a small, 128-byte block size and checksum error detection, it did (and continues today) to do an admirable job. [NOTE: This actual typed-in article was uploaded to the TechAlliance BBS using XMODEM protocol. P.B.] It is hardly robust, but is perfectly functional. The elegance is in its simplicity, which has made it one of only two truly ubiquitous protocols (KERMIT being the other).

Most implementations of XMODEM today accommodate 16-bit CRC error detection for increased reliability. Other early enhancements to XMODEM included a block 0 to transmit file information, as well as a 1,024 byte block size. These enhancements, however, are usually associated with the YMODEM protocol. Chuck Forsberg is commonly credited for these extensions.

The primary advantage to XMODEM is that almost everything has it. As such, it often serves as the protocol of last resort. It DOES allow error free file transfers. The latest version of Borland's Sidekick, for example, sports a terminal program with but two protocols ASCII (not actually a file transfer protocol) and XMODEM. If you want to transfer files with Sidekick, and an increasing number of other utilities offering bare-bones terminal programs, XMODEM is the only viable option.

YMODEM is one of the greatest sources of contention among members of the online community. The term is used to describe several distinct protocols, and different implementations use different terminology, causing tremendous confusion for end users.

One early document, "XMODEM/YMODEM PROTOCOL REFERENCE" Version 13.10, 05/08/85, ed. Chuck Forsberg, describes YMODEM as simply XMODEM with a block 0, 1,024 byte blocks and a 16-bit CRC added. Recent Forsberg documents directly contradict this, saying that the only real "YMODEM" is one with batch capabilities, which many implementations call "YMODEM Batch" as opposed to standard "YMODEM" without batch capabilities.

In the same early document, Forsberg referred to an XMODEM variant protocol with block 0, 1,024 byte block, a 16-bit CRC and batch extensions as "YMODEM Batch"—again directly contradicting his most recent statements. Forsberg now blames developers for the confusion, and has even registered the trademark "True YMODEM" to refer to the batch extended YMODEM he says is the only real YMODEM. A "certification program" has been established by Forsberg to certify programs compliant with his True YMODEM, but we can find no evidence of such a program being very popular among developers, with none we've seen using the trademarked term.

Regardless of the politics and changed tunes over time, the most recent Forsberg document on XMODEM and YMODEM describes them differently than previous documents. To one extent or another, developers are beginning to use terminology more or less after the current Forsberg fashion. Although not precisely identical to Forsberg's most current document, the following terms appear to be the industry consensus.

XMODEM-128-byte blocks, checksum or optional 16-bit CRC error detection. Some XMODEM implementations separate checksum and CRC modes, calling the latter specifically XMODEM/CRC.

XMODEM-kw. Same as XMODEM, but with 1,024 byte blocks. 16-bit CRC is generally assumed with this protocol. In earlier implementations, this is also called YMODEM.

YMODEM Same as XMODEM-1k, but with block 0 and batch capabilities added. In earlier implementations, this is also called YMODEM Batch. This is presumably what the Forsberg/Omen Technologies trademark "True YMODEM" refers to, although Forsberg outlines a number of rigid guidelines for "True YMODEM" certification.

No matter how you or your software happen to refer to them, XMODEM and YMODEM are two of the most widely supported protocols you'll encounter. As mentioned previously, XMODEM is one of two truly ubiquitous protocols, with KERMIT being the other. If your choices of protocols are limited to XMODEM and YMODEM, it's largely a toss up as to which one to pick. Because of the small block size, XMODEM performs best at low speeds (1200 bps or slower) or under poor line conditions. The large block size makes XMODEM-1k and YMODEM perform best at higher speeds (2400 bps) or under good line conditions at slower speeds. Generally, both XMODEM and YMODEM are poor choices for 9600 bps use.

Both XMODEM-1k and YMODEM have "G" variants—XMODEM-1k G and YMODEM-G. These protocols are like their non-G relatives in almost every sense, except for two items. First, they can only DETECT errors-not CORRECT them. Second, they are true streaming protocols, in that the transmitter never waits for an ACK or NAK from the receiver. With these protocols, data simply flows until an error is detected, then the transfer aborts.

Both "G" variants are for use in situations where the connection itself handles error correction. In a dial-up situations, that means that you must have an error correcting modem (MNP Classes 1 through 4 or CCITRT V.42); the host must have a similarly capable modem; and both ends of the connection must have the error corrections features enabled. If any one of those three elements are not in place, XMODEM-1k-G and YMODEM-G are practically useless, as even one single errant bit would cause the transfer to abort. Because these are true streaming protocols, however, they are about as fast as a file transfer could theoretically be made to be. On average, they're about 5% faster than ZMODEM which is widely regarded as one of the fastest general purpose protocols.

IMODEM is another rarely-used streaming protocol. It offers practically the same advantages and disadvantages of XMODEM-1k-G and YMODEM©G.

MODEM7 is a protocol which is a direct variant of XMODEM. MODEM7 is like XMODEM in almost every sense, except that is batch transfer capable, and hence sends partial file information (block 0). The only information it sends, however, is the file name. No file date, time or size are sent. It's unlikely you'll ever encounter MODEM7 much anymore; it is used primarily by some CP/M-based systems as well as older BBS software packages. MODEM7 might be considered better than XMODEM due to its batch capabilities, but with regard to transfer efficiency, it suffers XMODEM's same limitations.

TELINK is another direct variant of XMODEM that was designed by Tom Jennings, author of the Fido BBS program, as well as the popular FidoNet network itself. Its original application was for FidoNet automated mail sessions, but Jennings also included it as a protocol on the Fido BBS for downloading files. It's nearly identical to MODEM7, except that it adds file size and date to the block 0 information. TELINK is rarely used outside of the Fido BBS environment. Although better than plain XMODEM is some regards, it's no more efficient, and there are usually better choices.

SEAlink, designed by Thom Henderson of System Enhancement Associates, is another XMODEM variant that was designed primarily for FidoNet use. It has also seen limited support in BBS environments as well. SEAlink is a sliding window, batch capable protocol with 128-byte blocks and a window size of 6 blocks. It's especially useful in situations where there are transmission delays introduced by packet-switch networks (such as PC Pursuit) and satellite-delayed long distance circuits. SEAlink is an excellent protocol for many applications, but its performance with high speed modems is generally marginal, and there are better choices.

In recent years, SEAlink has been extended to include an "ACKless" streaming mode called SEAlink Overdrive, as well as failed transfer restart. These extensions improve its high speed modem performance and overall functionality, but are rarely implemented outside of the FidoNet environment.

WXMODEM is another XMODEM variant that is much like non-extended SEAlink, except that its window size is 4 blocks. Designed by Peter Boswell, the protocol also features XON/XOFF avoidance, making it useful for many packet switch network environments. Its usefulness is similar to SEAlink.

XMODEM and its relatives (which constitute most of the mainstream, common protocols) all require an 8-bit connection for successful transfers to take place. Some systems, however, can handle only 7-bit data bytes. In mainframe or university environments, this is a common, though gradually fading limitation. Other computer systems can handle 8-bit data, but will choke when control characters (ASCII decimal 0 through 31) or a delete character (ASCII 127) are sent. KERMIT, designed at Columbia University, was engineered to handle these special cases.

KERMIT has been released to the public domain, and as such, is very commonly supported. It's capable of handling either 7-bit or 8-bit connections, using 7-bit transparency (8th bit quoting) when necessary.

KERMIT has seen many enhancements over the years, including RLE data compression, a file information header, sliding windows (often called SuperKERMIT) and large blocks up to 1,024 bytes in size for more efficient transfers under many conditions. Plain KERMIT is effectively a half duplex protocol (like XMODEM and its variants). SuperKERMIT (by definition of sliding windows) is full duplex, and enjoys greater efficiency than plain KERMIT.

KERMIT should be used only in cases where you are forced to use a 7-bit connection. Although some of the later KERMIT enhancements keep the protocol fairly efficient, those extensions are not universally supported. In all cases where 8-bit data is used, there are better protocol choices.

As I mentioned in my last column, some 7-bit services allow 8-bit protocol usage through data bit shifting. CompuServe and GEnie are two examples of such services. If your 7-bit online service shows XMODEM and other 8-bit protocols as choices, it's a safe bet that they can be used transparently through the automatic shifting technique, thus making the use of KERMIT unnecessary.

ZMODEM is enjoying a tremendous burst in popularity in the past couple of years. Designed by Chuck Forsberg, ZMODEM is a fast and efficient protocol with several human niceties which account for its rapid acceptance within the online community. Among ZMODEM's innovative features are variable packet sizing, failed transfer restart, complete file information, 16-bit or 32-bit CRC error checking, automatic download start©up (receiver dictated) and a pseudo-streaming, full duplex nature.

ZMODEM MobyTurbo and ZMODEM-90 are two ZMODEM enhancements developed by Forsberg. They increase performance to approach the speed of YMODEM-G, and add such additional features as control character avoidance and true 7-bit transfers. Neither are widely supported yet.

ZMODEM is a "jack of all trades" type of protocol. With the exception of true 7-bit only situations (where KERMIT it called for), ZMODEM is probably the protocol of choice in nearly any downloading situation where it's available. It's efficient at low speeds and high speeds, and it remains efficient during changes in line conditions with its variable packet sizing feature. More and more software is supporting this protocol, and you'll likely find it on most current versions of BBS and terminal programs.

The bottom line? YMODEM-G is the fastest and most efficient IF both modems are using MNP or V.42/42bit for error correction. KERMIT bridges the gap from PC's to mainframe 7-bit systems. ZMODEM offers the best overall utility and speed whenever available and its autotransfer and file restart features make it a pleasure to use. If all else fails, XMODEM is almost always available from virtually any terminal program and all BBS systems.

That about wraps up my summary of protocol features. Hopefully it will help you in your modem travels to make informed decisions on which protocol to use when transferring files. In a future column, I'll present a summary of some of the new "niche" protocols you may encounter, such as BiModem and Puma. Next month, I'll return to the subject of modems with a whirlwind tour of the 9600 bps arena. [NOTE: We MAY be reprinting this also. P.B.]

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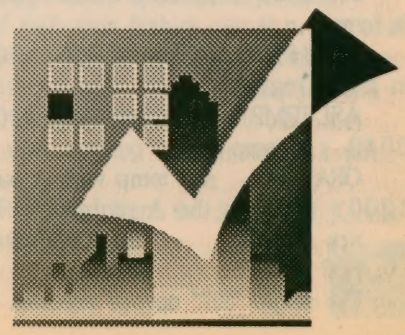
NOTE: This article was typed in by Peter A. Barnes, AMIGA SIG Leader. ▲



6502 UNDOCUMENTED OPCODES

by Noel Nyman

Author's Note: The BASIC program below may need some tweaking to work on Apple II's. I'm not sure if the POKE, PEEK, and SYS syntax are the same as Commodore, and I have no access to an Apple for testing.

If you have a computer with a 6502 microprocessor (NOT a 65C02), and nothing better to do on a rainy afternoon, try the following short machine language program.

```
temp1 =   $FB    ;zero page temporary storage at locations $FB,
temp2 =   $FC    ;and $FC, change to unused
;addresses in your system if necessary
org 2000  ;start program at address $2000, change if you need to
start:
lda   #$01
sta   temp       ;store binary 0000 0001   at address "temp"
lda   #$80       ;and put binary 1000  0000  in the A register
nop
sta   temp2      ;store value now in the A register at temp2
rts
```

Use your monitor program to change the two NOP's to:

$07 and
$FB

The 6502 executes about 146 documented instructions. These are represented by one byte operations codes or "opcodes". There are 256 possible opcodes. MOS (now Commodore) chose not to document the remaining 110. Although a few sources refer to them as "pseudo-opcodes", they're most commonly called "undocumented opcodes".

The "$07" in the sample program is an undocumented opcode. But, it does execute instructions. Execute the program, then examine location "temp2". You'll see the value $82 (decimal 130, binary 1000 0010). The equivalent program is:

```
    lda #$01
    sta temp    ;binary 0000   0001 in temp
    lda #$80    ;binary 1000   0000 in the A register
    ASL TEMP    ;shift left leaves 0000 0010  in temp
    ORA TEMP    ;OR temp with A puts 1000   0010  in the A register
    sta temp2
    rts
```

The single "$07" opcode executes two documented instructions. Astute machine code types will recognize that the "ORA" and "ASL" opcodes are $05 and $06, the two codes just preceding the undocd $07.

If you don't have a machine language monitor, RUN the following BASIC program to create and execute the machine code.

```
10 temp = 251: temp2 = 252: rem zero page locations, change if necessary
15 address = 8192     : rem program starts at 8192, change if necessary
20 for x= address to address+10
30   read y
40   poke x, y
50 next x
60 poke address+3, temp: poke address+7, temp
65 poke address+9, temp2
70 sys address        : rem execute machine code
80 print peek(temp2)  : rem and examine changes in the 'A' register
90 end
100 data 169, 01, 133, 0, 169, 128, 7, 0, 133, 0, 96
```

My first exposure to the undocumented opcodes came from an article by Joel Shepherd in COMPUTE! ("Extra Instructions", October 1983). He showed that about half of the undocd codes are either NOP's or cause the processor to crash. The remaining codes have some curious properties, frequently executing several instructions at the same time.

Several months later, Chris Newman (Reflexive Software) was developing what turned out to be the ultimate Commodore C64 block editor, DISK MAINTENANCE. He wanted to add optional disassembly of undocd opcodes, and asked me to do the research. I found some of Shepherd's descriptions were incorrect and others were incomplete.

I also found early 1980's references to the undocd codes by a Dr. Dobbs columnist who suggested their possible use in a special assembler for adding comments that would be retained in the object code. He was adamant that they NOT be used to execute their curious instructions.

"The Complete Commodore Inner Space Anthology" published by TRANSACTOR (a Commodore oriented Canadian technical journal), and "Programming the PET/CBM" by Raeto West give brief charts of the undocd codes. The Anthology chart is a virtual repeat of Shepherd's work. West presents a more organized chart, and leaves out the really strange codes.

When TRANSACTOR was still publishing, I considered doing a full treatment on the undocd codes. It occurred to me that, since the 6502 was used in the Apple line before Commodore made computers, someone in that community may have worked with them also.

A call to Apple put me in touch with Bob Sander-Cederlof who at one time published "Apple Assembly Line". The March, 1981 issue (volume 1, issue 6) contains the best, most definitive chart I've seen. A year before Rae West, two years before Shepherd, Sander-Cederlof had pinned down all the quirks and curiosities the rest of us have "discovered".

When I talked with him, Sander-Cederlof suggested that anyone really interested in this subject should probably get in touch with Bill Mensch, the designer who created the 6502. He would certainly be the best source for why the instruction set has undocd opcodes. TRANSACTOR folded, and I lost interest in the project, so haven't tried to contact Mensch.

A comment frequently encountered in undocd opcode articles is the danger in using them. The usual reason given is that newer versions of the chip may execute the codes differently. To test that, I and several others, ran sample code on PET's and VIC20's (6502), the C64 (6510), a Commodore Plus4 (1756) and a few Apple II's (6502). Although these weren't exhaustive tests, everything we tested worked identically on all machines. We did find one code that executed differently on the 8502, the microprocessor Commodore used in its now discontinued C128.

These codes do some crazy things, in all 13 addressing modes. Some even change the stack pointer, making for interesting effects if you use JSR's to test them. The codes that tripped up Shepherd and McLaughlin ($9B and $9E) use the high byte of the data address, increment it, form a product with a register, and store the result using absolute indexed Y addressing.

If, after all that, you decide to pursue this subject, good luck. It will be frustrating and fun. If you find anything interesting, let me know and we'll compare notes.

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USA ▲

APPLE II FAMILY

May 7, 1991- Oh, What You Missed!

by Mike Staats

If you were not at the May 7th meeting, you sure did miss out on a good one. We were offered a chance to see for ourselves the difference between the Transwarp Board by A.E. and the Zip Chip Board by Zip Technology. Zip Technology sent up Mr. Steve Meadows to make the presentation to our SIG. Steve is the engineer that designed these boards, so we really couldn't find a better person to tell us about it.

Steve set up two Apple GS machines, one belonged to the SIG group and the other was mine. He went to put the Transwarp in the SIG's GS, but it wouldn't work because there were other boards in the place where it would reside. So he installed the Zip Chip Board instead. That made my machine destined to get the Transwarp Card.

After this was accomplished, both machines were turned on. Needless to say, the system with the Zip Chip came up first. He then loaded an AppleWorks GS spreadsheet file into both machines. He then proceeded to recalculate both files at the same time on the two machines.

Bill Bredehoft had previously handed me a electronic stopwatch to time the process. It took 6 minutes and 34 seconds for the machine that had the Zip Chip Board installed and 3 minutes and 31 seconds later, the machine with Transwarp Card was finished.

Our group still held their reserve. Not until the Q & A session started, did things start to heat up. Questions were fired from the floor in rapid succession and answered in the same manner. When all the questions were finally answered, the group felt that the Zip Chip Board was, indeed, a better value for the money.

The line formed at the front desk to buy or order the Zip Chip Board at a special price for the group. But if you didn't make it to the meeting, you still have a chance to purchase one at these boards at the same special prices until the end of July.

Special SIG Meeting Prices are as follow:

8 Mhz with 8k cache	$179.00
9 Mhz with 32k cache	210.00
9 Mhzwith 64k cache	260.00
10 Mhz with 32k cache	329.00
10 Mhz with 64k cache	379.00

Remember, these great prices are only good through July, 1991. If you have any questions about the boards or the above information, drop me a note on the TechAlliance BBS. ▲

How to Plan Your Switch to System 7

by George Costello

Because System 7 marks such a significant change from previous versions of Apple's operating system, users will want to create a carefully thought-out plan for changing over to it when the time is right. That time may not be now, because it is virtually certain that some of the software everyone is currently using WILL be incompatible! The System 7 Compatibility Checker, a HyperCard stack supplied with the new system software package, will provide clues as to where any problems may lie.

The main problem for most users will be with INITs and CDEVs we have come to know and love; many of them will (unfortunately) be unusable. The fact is that we need many of these system extensions for essential things like electronic mail, virus detection, printing, automation, and other important tasks.

If you simply can't do without your favorite INIT, etc., your best course of action will probably be to wait for awhile until the world catches up with all these new changes. Updated and/or completely new software will eventually come along to take the place of the "old" stuff which only works with System 6.0x or earlier. In the meantime, create a plan for making the changeover as painless as possible when you're finally ready to make the move.

The best way to experiment is by installing System 7 on a spare (external) hard drive that doesn't contain any critical data. That way, your main boot drive will remain untouched by any unforeseen problems. Not everyone has this luxury, of course, but if you do, any risks will be greatly reduced. (A spare outboard hard drive can solve other problems, too, like providing an immediate alternative boot-up source when something goes wrong on your main drive. It will prevent your Mac from ever being "down" or out of commission. Think about it!)

If you have but one hard drive, consider "stuffing" your existing System Folder (which both saves it and makes it available for reuse later, should you need to revert to it). Use Stuffit Classic or Compact Pro, which were included on the January '91 & April '91 MacCORE Disks of the Month, to accomplish this task. Then take a simple step-by-step approach to the transition.

Use Apple's Installer to put System 7 in place with the right combination of features for your particular needs. Keep the new System 7 features disabled at first and explore them thoroughly one by one. Create a plain vanilla Apple-only system. Turn off virtual memory, file sharing, and 32-bit addressing. Test applications for compatibility, and get updated versions where necessary. When this basic System 7 configuration is completely stable, tackle each new feature one at a time until everything else is debugged. Then you can experiment with System extensions and add-ons until you are comfortable that your new working environment is a safe one!

Reprinted from the June 1991 Kansas City MacCORE ▲

The First 20 Things to Do and Notice with System Software 7.0

1. Check Out the New Menu Items...

The Apple Menu doesn't look too different at first glance, but it definitely is! It's user modifiable (w/o Font/DA mover!), and anything can be put into the Apple Menu for quick and immediate access! The limit on items in the Apple Menu is now 50 items. More info on putting things into the Apple Menu later.

There is a new menu called "Label" which allows you to label icons whether or not you're on a color or black and white system. Choose an icon and select a label from the Label Menu. It's another way to organize your system, and you would use this whenever you wanted to view by label, or find by label.

The "?" menu is the Interactive or Balloon Help menu. Choose "Show Balloons" and move the cursor over any icon or menu item. This gives users instant help on items they see on the screen or in dialog boxes. Choose "Hide Balloons" to turn them off again.

The "Applications" Menu which takes the place of the "MultiFinder" icon is now a pull down menu which lists the open applications and their windows. This doesn't quit the application, it just hides the windows until you choose the grayed out application from the "Applications" Menu. Holding down the Option key and clicking on the Desktop will hide the open application windows.

2. Check Out the New System Folder Organization

Open the System Folder, and notice the new folders called "Apple Menu Items", "Extensions", "Startup Items", "Control Panels", "Preferences", as well as a different look (and functionality) of the System file itself. You can drag System Folder items directly onto the System Folder icon, and the system will put them in the appropriate place (after it asks you if that's OK, of course!).

1. Apple Menu Items Folder: Put icons (applications, documents, aliases, DAs or CDEVs) in this folder so that they appear under the Apple Menu. No need to restart, put them in and choose them from the menu!

2 Extensions Folder: This is the place where Systems Extensions (INITs) go. You'll notice LaserWriter drivers, Chooser drivers, DAL drivers, etc. in this folder. INITs are loaded from the Extension Folder first, then the Control Panels Folder, and then the System Folder.

3. Startup Items Folder: Any application, document, CDEV, or DA you want to start upon booting your machine goes in this folder. This folder is NOT for System Extensions (INITs).

4. Control Panels Folder: Here's where all your control panels live. There's an alias to this folder in the Apple Menu for easy access. Remember, you can double click on a control panel anywhere, at any time!

5. Preferences Folder: This is where the files like "More Preferences" and dictionaries go, but applications will need to be modified to put these files into the "right places".

6. System Files: You can double click on the System File to open it. Only fonts, sounds, and keyboard resources go into the System File. No more Font/DA Mover, just drag new fonts or sounds to install.

3. Installing 6.x DAs, INITs and CDEVs

Open the System File on an old 6.x System, or an old suitcase. Just drag a font, sound, DA, or keyboard resource on the System Folder, and it will "do the right thing" and put it in its place (DAs &CDEVs in the Apple Menu Items Folder; fonts & sounds into the System File).

4. Almost Everything is Double-clickable

Open an 6.x Suitcase or the old 6.x System File. Drag a DA onto the desktop (something like calculator) double click on it. In 7.0, DAs, fonts, sounds, and CDEVs can be opened by double clicking on them. It's best to keep CDEVs in the Control Panels Folder, however.

5. Viewing Items

Choose "View by Name" from the "View" Menu. Notice the new outline view that you'll get with every list view. Clicking on the little arrow next to a folder will show you what's inside without opening a new window. That means you can see your entire hard disk in one window, and select items from different folders at the same time. Choose multiple Finds to be viewed all at once will automatically put you into this view.

6. Finding Things

Choose "Find" from the file menu to find a particular file. Choose "More Choices" if you want to find a file according to certain criteria (kind, label modification date, etc.). Click on the check box "All at Once" if you want the items to be selected all at one time. You can "do" something with the selected items like move them to a floppy, throw them away, or move them onto a different folder.

7. The Desktop

The Desktop is a new entity in 7.0. In Open File and Save File dialogs, you'll see a new button called "DeskTop" which replaces the "Drive" button. This button brings you to the desktop level where you can see and choose from all mounted volumes (instead of having to blindly cycle through as before). There is another new button in the Save Dialog Box called "New Folder" which allows you to create a new folder when saving a document.

8. Navigaion

You can navigate with the keyboard now in 7.0. In an open window choose the first letter of an icon you're looking for, or use the arrow keys to navigate right, left, up, and down. The Tab key moves alphabetically, Shift-Tab is reverse alphabetical.

When a window's open, hold down the Command Key and click on the name of the open window. You'll see the path to the open window. You can navigate by releasing the mouse on any window in the hierarchy.

All of the command keys that work in the Open Dialog will work in the Finder.

9. The Chooser

There's a new Chooser in 7.0. The new Chooser has a bigger window with almost unlimited zones (~16,000 nodes per zone limitation) and shows up to 32 characters names in an alphabetized list (device and zone). Keyboard input is accepted, as well, for easier access. The user's name is not found in the"Control Panels" folder in the CDEV called "Sharing Setup".

10.Virtual Memory

There's a new panel in the Control Panels folder called "Memory" which allows a user to go beyond the physical limitations of RAM. This is for the user who wants to start up that one more application, not someone using a memory intensive application which requires double the existing amount of RAM. To start up VM, double click on the Memory CDEV, and click on the radio button which turns VM on. It will allow you to choose any mounted hard disk (not network devices). The default setting is double your physical RAM (if you've got 2 MB RAM, suggested maximum for VM is 4 MB TOTAL memory). If you have a IIci, IIsi, IIfx, or LC, you will also be able to click on the "32-bit addressing" radio button. This would allow you to extend VM up to 1 Gigabyte (LC cannot run VM because it doesn't have a PMMU).

11. Background Copying

If you have an application open, and want to copy something from a fileserver, but still want to work on your document while you're doing it - you can! Remember, you must have the application open, and the window visible in order to go back to it.

12. Refinements

The first thing you notice when you start 7.0 on a color or grayscale system is that the windows have a very subtle shading to them. This is a user definable item you find in the "Color" CDEV. Open the Control Panels, and the "Color" CDEV. Change the color.

Zooming: Doesn't obliterate your screen to click on the zoom box anymore. The window will open to as large as it needs to. Try it.

Band selection: Band select several items in a window. If there are items not visible, hold the cursor at the edge of the window, and it will automatically scroll for you.

Moving icons: Move an icon from a visible portion of a window to the portion that's not visible (where the scroll bars are - to the right or below. Hold the icon at the edge to have the window scroll). The window will automatically scroll for you. If you want to move an icon from an inactive window to an active window, the inactive window won't become active until you let go of the mouse. It makes it much easier to move items between windows!.

Emptying the trash: The trash will no longer empty whenever it feels like it. It will empty only when the user chooses "Empty Trash" from the Special Menu.

Renaming files: A user must explicitly click on the name of an icon to change it. A box will surround the name, and then the name is editable. When file sharing is turned on, the user cannot rename the hard disk.

The 7.0 LaserWriter drivers save the state you left the setup in. If you chose black and white, it will remain that way until you change it to color/gray scale.

13. TrueType

There are four TrueType Fonts available in your 7.0 system: Times, Helvetica, Courier, and Symbol. These fonts will allow you to create presentations in any size, and you don't need the bitmap version for that exact size in your system! The extended set will be available at a later date, and more will certainly come from font developers.

14. Aliases

Under the File Menu you'll find a new menu item called "Make Alias" which allow you to create links to any icon. The flashiest demo is to create an alias to a fileserver, and choose the alias from the Apple Menu. You can also put the alias on a floppy, to to a different machine and double click on it. Aliases allow users to have multiple links to icons, and makes access much easier.

15. Stationery

For those applications which don't already support stationery, it's not built in. You can create a template of a document, and never make the mistake of overwriting it again. A good example is an expense report. Open a generic expense report and fill in all the static info (like your name, employee number, etc.) save the file, and do a "get info" on it. Check the Stationery Box, and then double click on the file again. You will be asked immediately to name the new file. This means that you'll never overwrite the original again.

16. File Sharing

Open the Control Panels from the Apple Menu. Double click on the "Sharing Setup" CDEV. Fill in the appropriate information and click "Start" for starting up File Sharing. Now close the CDEV. Open the CDEV called "Users & Groups" and choose "New User" from the File Menu. Give the new user a password, name, etc., and close the CDEV. Choose a folder you want to make available to that user, select it, and choose "Sharing" from the File Menu.

17. Fileserver Access and Privileges

Connect to a fileserver you have access to. Create a folder on the fileserver, and choose "Sharing" from the File Menu to set the privileges. The Get Privileges Menu has been replaced with the Sharing Menu.

18 General Compatibility

One of the greatest things about 7.0 is that you can run most of the applications you ran on a 6.x system! The Compatibility Checker on the the Before You Install 7.0 disk will be available when 7.0 ships, and it will list those applications known to be incompatible with 7.0. Those things that might not work well are CDEVs like spell checkers, or INITs.

19. Screen Snapshot Built into the System

Command-Shift-3 will now take a screen shot of your screen and create a color PICT document. It also makes a noise like a camera shutter, but don't worry, your system didn't crash.

20 Edition Manager

Explore the features of Publish and Subscribe using System 7 - capable applications such as Claris Resolve, MicroSoft Excell and PixelPaint Pro. The publish-and-subscribe functions of System 7.0 will let you open a document within an application, select the data that you want to publish, and then choose the Publish Command from the Edit Menu. The file created will be called an edition.

A spreadsheet could be a publisher, for example, with manufacturing data subscribed to by both an inventory report that is a word processing document and a marketing report in a page-layout program. As numbers in the spreadsheet changed, the inventory report figures would change too, once the document was opened. The marketing report would also be updated once it was opened.

Reprinted from the Kansas City MacCore, June 1991 ▲

Bits and Bytes

by Bill Cowell

AT Enhancements

There is a combination of improvements that you can make to your 286 machine that may save you from the major cost of a new computer. AT's will run almost all the software that is now available. About the only thing they can't do is multi-task. You can get most of the benefits of multi-tasking, by using a memory manager that allows you to quickly switch from one program to another. If speed is the main reason for considering a new machine, there are a number of things that can be accomplished by simple and inexpensive modifications to your current system.

The first thing to add is a coprocessor. Coprocessors for AT's are available for less than $100. A coprocessor for a 386 machine will cost you 3 or 4 times as much. Another possible improvement is relatively new, its a board with the Weitek Graphics Coprocessor Chip. This chip is suppose to double the video performance for such graphic dependent programs as Windows. These board will cost you about $150. Additional memory or possibly a faster hard drive are more expensive improvements. Memory will cost about $60 a megabyte. To this, you may have to add the cost of a memory board if your system doesn't have room on the motherboard for more memory.

Before buying a new hard drive, first install a software caching program, and check the interleave of your current drive. If you have Windows or PC Tools try the cache program that comes with these programs. An even better caching program is the one called PC Kwik. In general, I wouldn't recommend that you replace your hard drive unless it is smaller than 40MB and/or is slower than 28ms average access time. If you do need additional storage, a new 80 megabyte IDE drive with 19 ms average access time, will cost you about $335 plus the cost of the interface card (about $25). Some AT systems have the IDE interface on the motherboard saving you the cost of this board.

There is no need to update your video until you feel you just can't live without the latest in VGA. Fortunately the cost of VGA has come down quite a bit and can now be bought for about the same as an EGA monitor. A new monitor can always be used with a new machine. You might want to wait a little on the VGA until the latest in video boards come down a little in price. These new boards incorporate the RAMDAC (RAM-to-Digital-to-Analog-Converter) chips. The cards will give you displays with thousands of colors and photographic quality.

One thing is sure, if you look at how much cheaper the new machines will be, even a year or two from now, the money you have spent on the 286 will seem a real bargain. This is true even if you essentially give the old machine away.

I haven't mentioned accelerator boards. They have been available for some time, but have had limited marketing success. Initially they were priced a little too high to offer a viable option to buying a new system. DAC has finally discontinued making their BreakThru board. If you want a real bargain, some of these boards are available from some of the discount liquidators. Recently, at least two new boards have been announced. The one from Intel uses a 20 MHz 386SX and lists for $495. This snap in board includes an onboard hardware cache, which will further speed up system operation. AOX Inc. of Waltham, Massachusetts is expected to release both 16 and 20 MHz 386SX boards for 286 machines. Price on these boards will be under $400.

One thing is sure, if you look at how much cheaper the new machines will be, even a year or two from now, the money you have spent on the 286 will seem a real bargain. This is true even if you essentially give the old machine away.

Unfortunately, XT owners don't really have good upgrade options. If your system doesn't have a hard drive, this is a relatively inexpensive and worth while upgrade. You can go to a VGA monitor, but this requires an 8 bit card. which you won't want to take along when you upgrade to a new machine. Windows isn't a viable option. If you want the Windows look and feel get GeoWorks. By the end of this year, you will see some good application programs written just for Geos. And by the time this article is published, they will have already have released a spelling checker and printer drivers for postscript printers. Spreadsheets and databases will follow shortly. The programmers that developed VP Planner (the excellent Lotus clone), are developing a spreadsheet to run under Geos. There has been some special pricing options available, but even if you have to pay the current street price of about $119, it is worth it. Many home users only use the computer for word processing, small spreadsheets, and a home accounting package like Quicken. If you are one of these, there is no reason to go to a new machine. Speed isn't all that important with these applications.

Updates

If you must have the newest and latest, you will have to rush out and get the new upgrade of PC Tools. Version 7 includes three Windows-specific applications. Two of the additions or modifications to the program include the modules for Backup and Commute. These will also ship as stand alone programs. This version is not a specific Windows program, but will have a interface similar to Windows. The program will also include basic virus protection. As you might have guessed, the price will also go up. List price will be $179. It won't be long before they have to have "competitive upgrade" pricing, like Borland, in order to entice a large number of buyers.

Also new, is version 2.3 of Lotus 123. This upgrade, which will replace the current version 2.2, incorporates some of the enhancements found in version 3.1. Specifically it includes WYSIWYG capability and a browser capability similar to Viewer in Magellan. Speed is excellent. InfoWorld tests showed it to be faster than Quattro 3.0, except for calculation in a template with a considerable number of scientific calculations. Borland was quick to rise to this challenge. They have announced a release of Quattro, version 3.01, which will speed redraw performance.

Spinnaker Software is releasing the first entry level integrated package for Windows. It will have all the program modules similar to those now found in DOS versions of Works from Microsoft and Lotus. By working in the Windows environment, you will be able to provide hot links between the various modules. It will be interesting to see how much memory it will require for satisfactory operation.

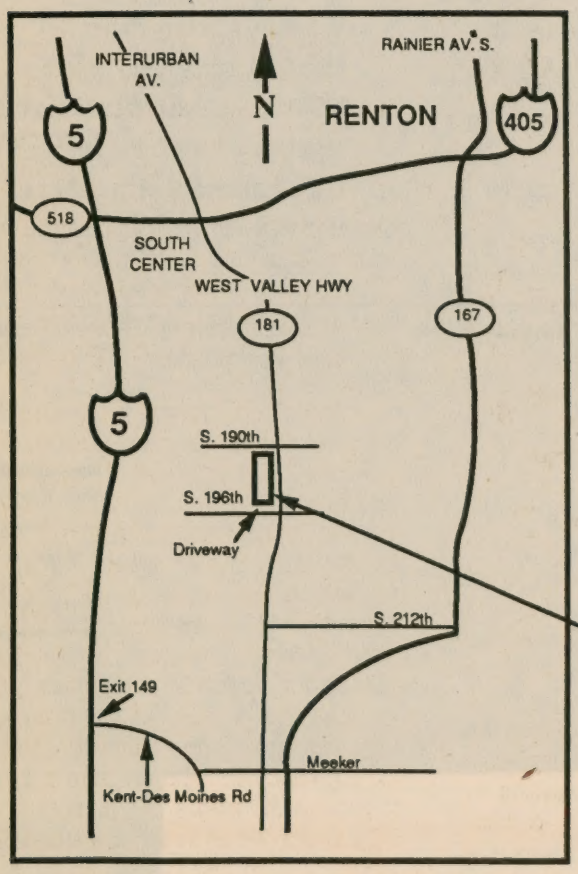
The first of May, Microsoft announced they were releasing Multimedia Extensions 1.0 for Windows. The program is expected to support the release of a number of new PC's which will incorporate multimedia capability. The first to jump on the band wagon was Tandy. Tandy's new machines will cost from $250 to $800 more than the similar computers without the multimedia capability. Tandy also indicated that they will have add-on packages for existing machines. These will cost $800 for the internal version or

$900 for the external version. By this time next year, expect all computer vendors to offer computers with multimedia capability. The main component of systems with this capability is a CD player. Microsoft said they expect many of these systems to include their Multimedia Windows package. It will include HyperGuide which will be available on a single CD ROM disc. The program will also include new Windows accessories and Control Panel "applets". The accessories include Music Box, which will let users play and catalog audio CDs using a multimedia CD ROM drive.

Shareware of the Month

If you have an EGA or a VGA system, you can now get a couple of shareware games that are suppose to be attractive enough to drag your children and other Nintendo addicts away from their game machines. At least that is the report from one reviewer with two ten year old's. He indicated that the program was at least was good enough to reduce the number of fights over who would get the Nintendo. The program he reviewed is called "Commander Keen". It is available from your friendly BBS under the title "#1Keen.Zip". He wasn't sure whether they liked it for the graphics or for the "Mario Bros." jumping and dodging action. The other program is called Capt. Comic. Very similar in graphics and action. What a novice like me likes about the games, is you can save your game position. This allows you to resume at a later date without starting from scratch.

Editor's Note: Bill Cowell of Cowell Computers may be contacted in Seattle, WA at (206) 242-3692. ▲



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July Meeting Schedule

***Advance sign-up required for these meetings.*

Tue., July 2nd:	IIGS Beginners Session - 7:00 p.m.	Tue., July 16th:	Voluntary Advisory Comm. 7:00 p.m.
	IIGS (& II Family) SIG - 7:30 p.m.	Wed., July 17th:	Mac Programmers SIG - 7:00 p.m.
Tue., July 9th:	Mac Help Session - 6:45 p.m.		MS-DOS SIG meeting canceled.
	Mac SIG meeting - 7:30 p.m.		Meetings will resume in September
Wed., July 10th:	Amiga New User Class - 6:30 p.m.**	Tue., Aug. 6th:	IIGS Beginners Session - 7:00 p.m.
	AMIGAlliance - 7:30 p.m.		IIGS (& II Family) SIG - 7:30 p.m.
Sat., July 13th:	Amiga New User Class - 10:00 a.m.**		

Meeting Location: All meetings are held at the office unless otherwise specified.

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